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8.5

HW

Key p445-446 11-19 odd, 23, 31, 33

11. $V(\pm 2, 0)$

$F(\pm 4, 0) \quad 16 = 4 + b^2$

$C(0, 0)$

$$\frac{x^2}{4} - \frac{y^2}{12} = 1$$

13. $V(0, -3) (0, -8)$

$F(0, -2) (0, -9)$

$C(0, -5.5)$

$a = 2.5 \quad c = 3.5$

$3.5^2 = 2.5^2 + b^2$

$\frac{49}{4} - \frac{25}{4}$

$\frac{24}{4} = b^2 = 6$

15. $V(\pm 5, 0)$

$12 = 2b \quad C(0, 0)$

$6 = b \quad a = 5$

$$\frac{x^2}{25} - \frac{y^2}{36} = 1$$

$$\frac{(y+5.5)^2}{6.25} - \frac{x^2}{6} = 1$$

19. $C(0, 0) \quad a = 4$
 $b = 3$

$$\frac{x^2}{16} - \frac{y^2}{9} = 1$$

17. $V(9, -3) (-5, -3) \quad a = 7$

$F(2 \pm \sqrt{53}, -3) \quad c = \sqrt{53}$

$53 = 49 + b^2$

$C(2, -3)$

$$\frac{(x-2)^2}{49} - \frac{(y+3)^2}{4} = 1$$

31. $\frac{(x+1)^2}{4} - \frac{(y+3)^2}{9} = 1$

23. $\frac{y^2}{16} - \frac{x^2}{25} = 1$

$a = 4 \quad C(0, 0)$

$b = 5 \quad F(0, \pm \sqrt{41})$

$C = \sqrt{41} \quad 16 + 25 \quad V(0, \pm 4)$
 ≈ 6.4

$y = \frac{4}{3}x \quad y = -\frac{4}{5}x$

$C(-1, -3) \quad a = 2$

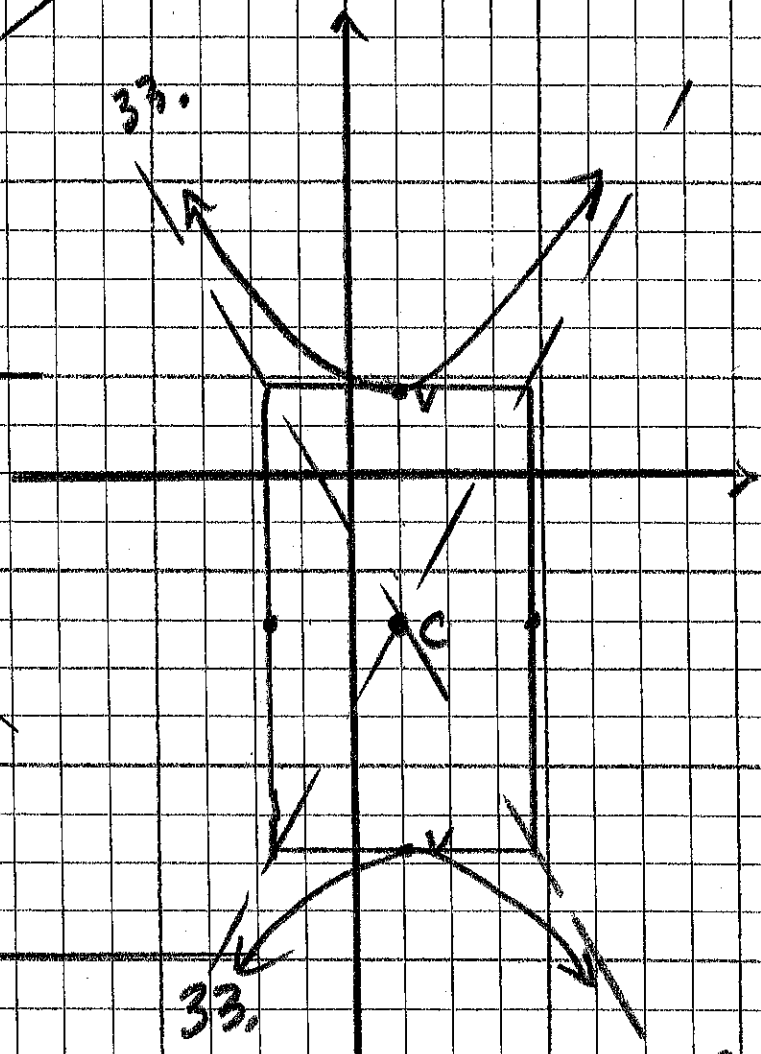
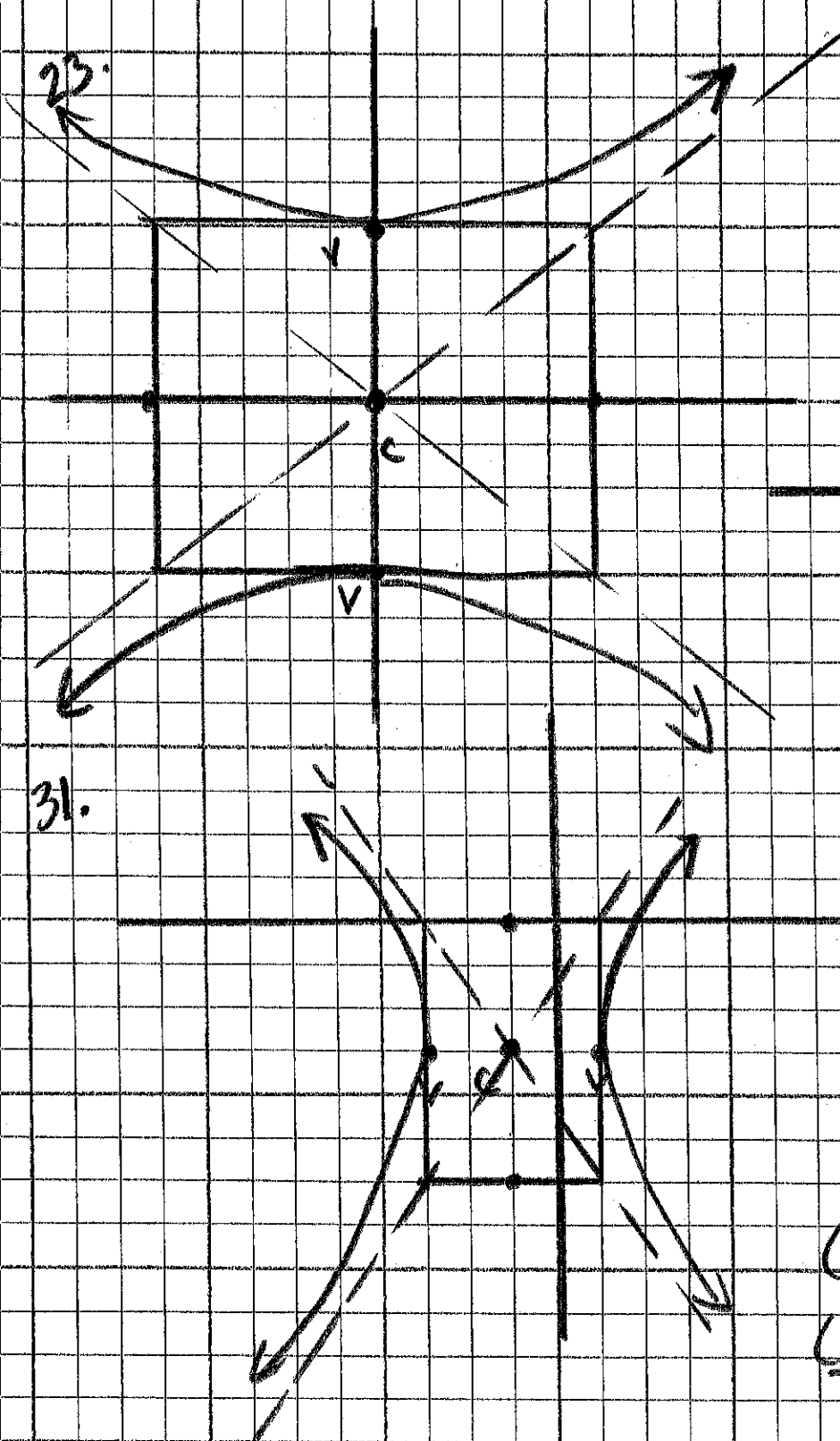
$F(-1 \pm \sqrt{3}, -3) \quad b = 3$

$c^2 = 4 + 9$

$V(1, -3) (-3, -3) \quad c = \sqrt{13}$

$y + 3 = \frac{3}{2}(x + 1)$

$y + 3 = -\frac{3}{2}(x + 1)$



$$\begin{aligned}
 y^2 + 6y - 3x^2 + 6x &= 18 \\
 y^2 + 6y + 9 - 3(x^2 - 2x + 1) &= 18 \\
 &\quad +9 \quad -3 \\
 (y+3)^2 - 3(x-1)^2 &= 24 \\
 \frac{(y+3)^2}{24} - \frac{(x-1)^2}{8} &= 1 \\
 C(1, -3) & \quad V(1, -3 \pm 2\sqrt{6}) \\
 a = 2\sqrt{6} &\approx 4.9 \\
 b = 2\sqrt{2} &\approx 2.8 \\
 c = 4\sqrt{2} &\approx 5.7 \quad 24+9=33 \\
 &\quad 24.7 \quad 32 \\
 y+3 &= \sqrt{3}(x-1) \\
 y+3 &= -\sqrt{3}(x-1)
 \end{aligned}$$